TP-1320
H.264 SD/HD Encoder

-----User Manual

Add: Bldg.46-2, No.2, North Jingyuan Str. BDA, Beijing, 100176, China
Tel: +8610 6439 8830 Fax: +8610 6439 1594
Web: www.topreal.com.cn E-mail: dengnj@tengrui.com.cn

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Chapter Ⅰ Brief Introduction of the Function

Fully complied with DVB H.264 standard, Topreal TP-1320 SD/HD Encoder is high-quality broadcast-level device for digital video encoding. it supports audio HD-SDI signal encoding and can transcode the MPEG-2 TS to H.264 TS, while the code rate can be compressed beyond to 1M bit/s. it can be used in high bandwidth requirements of digital TV head-end system. Resorted to the latest technical innovation, it acquires high-quality compression video through buffer control and efficient optimization of bit rate. TP-1320 SD/HD Encoder can provide excellent video performance even in CBR and VBR operating mode with low bit rate.

Main Features：

Video coding complied with H.264/AVC High Profile Level 4.0;

Video bit rate adjustment range: 0.5-10Mbit/s (SD); 2-20Mbit/s (HD);

CBR and VBR bit rate modes available;

Graphic resolution supports 1920*1080-60i, 1920*1080-50i, 1280*720-60p, 1280*720-50p, 720*576-50i, 720*480-60i;

GOP mode：IBBP;

Audio coding adapts MPEG-1 Audio Layer 2;

Audio bit rate supports: 64Kbit/s, 96Kbit/s, 112Kbit/s, 128Kbit/s, 160Kbit/s, 192Kbit/s, 224Kbit/s, 256Kbit/s, 320Kbit/s, and 384Kbit/s;

Excellent error recovery capability;

1U single rack unit chassis, LCD panel operation.

Service Port:

Input video Port: HD-SDI (support embedded audio), ASI port, analog composite video/S-VIDEO (optional);

Input audio Port: simulate equilibrium or non- equilibrium audio port (optional), AES audio port (optional);

Output Port: DVB ASI Port;

RS 232 port.

Network Port:

10Base-T Ethernet port

Chapter Ⅱ Specification of H.264 SD/HD Encoder

TOPREAL TP-1320 SD/HD Encoder complied with H.264 standard, is high quality broadcast-level device for digital video encoding compression product. Bit rate can be compressed to beyond 1M; it is mainly used in digital TV head-end system with high bandwidth requirements. Resorted to the latest technical innovation, it acquires high-quality compression video through buffer control and efficient optimization of bit rate.

TP-1320 can provide excellent video performance in VBR and CBR operating mode with a low bit rate. With its own unique parallel technical methods, TP-1320 ensures an optimal encoding and multiplexing mechanism in the multi-encoder working environment. With the advanced multiple parallel technology of pre-processing and compression complexity estimating, it can also be connected to other devices through DVB ASI port.

Chapter Ⅲ System Connection

The device is standard H. 264 encoder. The ports in the rear panel in turn are (in left-to-right sequence): Ethernet port, RS-232 port, standard ASI input, standard ASI output, S-Video input port, analog audio/video input port, HD-SDI input port, AES audio input port.

Chapter Ⅳ Function of the Buttons

OK: enter the next menu or modify parameter or confirm operation;

Up/Down Key: to read sub-menu under the same main menu in circle or increase/decrease value;

Left/Right Key: to read sub-menu under the same main menu in circle or move cursor;

MENU Key: to return to last menu or cancel modifying parameter;

Chapter Ⅴ Operation

5.1 Panel Operation

5.1.1 Video Input Port

This parameter setting is to set video port input. TP-1320 has two input ports, **CVBS** and **Y/C**. The specific operation: enter **Video Port Input** menu, the first line will display **Video Port Input**, press **OK** to select video input port, then the second line will twinkle, press the left or right key, you will see CVBS or Y/C appear in sequence at the second line separately. Select one and press OK to confirm setting.

Note: This port is only available when encoding the SD analog signal.

5.1.2 Bit Rate Mode

This item can set the bit rate transmission mode of the encoder. The specific operation: enter **Bit Rate Mode** menu, the first line will display **Bit Rate Mode**, while the second line displays the current bit rate mode, press **OK** to modify, then the second line will twinkle, press **left** or **right** key, it will display **VBR** or **CBR** separately. Select one of the modes and press **OK** to confirm setting.

5.1.3 Bit Rate

The specific operation of the bit rate setting: enter **Bit Rate** menu, the first line shows **Bit Rate** and the second line shows the current bit rate transmission separately. Press **OK** to select bit rate. Then cursor appears where number can be modified in the second line. Press **right** or **left** button to move the cursor, press **up** or **down** button to modify the number where cursor indicates. Select the proper bit rates, press **OK** to confirm setting.

5.1.4 Mode Select

The specific operation of the Mode Select: enter **Mode Select** menu, the first line shows **Mode Select** and the second line shows the current working mode of TP-1320. Press **OK** to select mode. Then the second line twinkles, Press **right** or **left** button to display **encoder** or **transcoder** separately, Select one of them and press **OK** to confirm setting.

5.1.5 H.264 TS Formats

The specific setting of the H.264 TS Formats: enter **H.264 TS Formats** menu, the first line shows **H.264 TS Formats** and the second line shows the current format. Press **OK** to select. Then the second line twinkles, Press right or left button to display 1920*1080-60i, 1920*1080-50i, 1280*720-60p, 1280*720-50p, 720*576-50i, 720*480-60i. Select one of them and press **OK** to confirm.

Note: the setting of the H.264 TS Format here should be the same with input video format.

5.1.6 MPEG-2 Input Formats

This menu is to set the input MPEG-2 signal format when the encoder is in Transcoder working mode. The specific procedure is: enter **MPEG-2 Input Formats** menu, the first line shows **MPEG-2 Input Formats** and the second line shows the current format. Press **OK** to select. Then the second line twinkles, Press right or left button to display 1920*1080-24p, 1920*1080-50i, 1920*1080-60i, 1280*720-60p, 1280*720-50p, 720*576-50i, 720*480-60i. Select one of them and press **OK** to confirm.

5.1.7 Input Audio Format

Set the input audio format when the encoder is in the transcoder mode. The specific procedure is: enter **Input Audio Formats** menu, the first line shows **Input Audio Formats** and the second line shows the current format. Press **OK** to select. Then the second line twinkles, Press right or left button to display **Normal** (select this format when in encoding mode), **MPEG-2 AAC** and **Dolby AC-3**. Select one of them and press **OK** to confirm.

Note: in transcoder mode, if the audio in the input TS adapts MEPG-1 or MPEG-2 mode, please select Normal format; if it is the MPEG-2 AAC format, please select MPEG-2 AAC format; if it is Dolby AC-3 mode, please select Dolby AC-3 format.

5.1.8 Advanced Setting

Such parameter setting is the advanced setting to the encoder. There are five advanced setting in the encoder. The specific operation: enter **Advanced Setting** menu, the first line display Advanced Setting, press **OK** to enter advanced setting, then the second line begins to twinkle, press **left** or **right** button, you will see **Audio Setting**, **Video Setting**, **LAN Setting**, and **Default Setting** in sequence. Select your needed advanced settings and press **OK** to enter the sub-menu of advanced setting.

5.1.8.1 Video Setting

Such parameter is the advanced setting of the video parameter to the encoder. There are five advanced setting for video in the encoder. The specific operation: enter **Video Setting** menu, the screen displays the current video parameter setting. Press **left** or **right** button, you can see **Video Contrast**, **Video Saturation**, **Video Hue**, **Video AGC** and **Video Brightness** in

sequence in the first line and the specific value or status of the current parameter show in the second line.

Note: This parameter is only available when encoding the SD analog signal.

5.1.8.1.1 Video Brightness

Such parameter is to adjust Video Brightness of the encoder. The adjustable range of the brightness is from 01 to 99. The specific operation: enter **Video Brightness** menu, the first line displays Video Brightness while the second line displays the value of the current Video Brightness. Press **OK** to enter modification status, and then cursor appear where number can be modified at the second line. Press **left** or **right** button to move cursor, press **up** or **down** button to modify the chosen number. Press **OK** to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

5.1.8.1.2 Video Contrast

Such parameter is the modification of the Video Contrast. The adjustable range of the Video Contrast is from 01 to 99. The specific operation: enter **Video Contrast** menu, the first line displays Video Contrast while the second line displays the value of the current Video Contrast. Press **OK** to enter modification status, and then cursor appear where number can be modified at the second line. Press **left** or **right** key to move cursor, press **up** or **down** key to modify the chosen value. Press **OK** to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

5.1.8.1.3 Video Saturation

Such parameter is the setting for the Video Saturation. The adjustable range of the Video Saturation is from 01 to 99. The specific operation: enter **Video Saturation** menu, the first line displays Video Saturation while the second line displays the value of the current Video Saturation. Press **OK** to enter modification status and then cursor appear where number can be modified at the second line. Press **left** or **right** key to move cursor, press **up** or **down** key to modify the chosen value. Press **OK** to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

5.1.8.1.4 Video Hue

Such parameter is the setting f or the Video Hue. The adjustable range of the Video Hue is from 01 to 99. The specific operation: enter **Video Hue** menu, the first line displays Video Hue while the second line displays the value of the current Video Hue. Press **OK** to enter modification status, and then cursor appear where number can be modified at the second line. Press **left** or **right** key to move cursor, press **up** or **down** key to modify the chosen value. Press **OK** to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

5.1.8.2 Audio Setting

Such parameter is the advanced setting to the Audio parameter of the encoder. There are four advanced audio setting in the encoder. The specific operation: enter **Audio Setting** menu, the screen displays the current audio

parameter setting. The first l line displays Audio Bit Rate submenu and the second line displays the specific value or status of the current parameter.

5.1.8.2.1 Audio Bit Rate

Such parameter is the setting to Audio Bit Rate. The available audio bit rate is 64kbps, 96kbps, 112kbps, 128kbps, 160kbps, 192kbps, 224kbps, 256kbps, 320kbps and 384kbps. The specific operation: enter **Audio Bit Rate** menu, the first line displays Audio Bit rate, press **OK t**o enter modification status, then the second line twinkles, press **left** or **right** key, you'll see 64kbps, 96kbps, 112kbps, 128kbps, 60kbps, 192kbps, 224kbps, 256kbps, 320kbps and 384kbps at the second line. Select one of the bit rates and press **OK** to confirm setting.

5.1.8.3 TS PID Setting

This parameter is used to set the **Video PID**, **Audio1 PID**, **Audio2 PID**, **PMT PID**, **PCR PID**, and **SIT PID** for the input MPEG-2 signal when the encoder is in transcoder mode. Only set these PID value correctly can the encoder do transcoding correctly. There are two audio PID setting (audio1 and audio2) in this item. If there is only one audio PID in the input TS, please set the two audio PID as the same.

5.1.8.4 Default Setting

Such parameter is the default setting to all the parameters of the encoder. Enter **Default Setting** menu, press **left** or **right** key, then you will see **Save Parameter** and **Load Parameter** the two sub-menus at the first line and the status of the specific parameters at the second line.

5.1.8.5 Save Parameter

This item is to save all the current parameters of the encoder. The encoder provides three save address, **Record 1**, **Record 2** and **Record 3**. Specific operation: enter **Save Parameter** Menu; the first line displays Save Parameter and the second line shows the current save address. Press **OK** to enter modification status, then the second line twinkles. Press **left** or **right** key, **Record 1**, **Record 2** and **Record 3** will appear in the second line in circle. Select one of the addresses and press **OK** to confirm setting.

Load Parameter

Such item is to restore all the current parameters of the encoder. The specific operation: enter **Load Parameter** menu, the first line displays Load Parameter and the second line shows the status of the current load parameter. Press **left** or the **right** key, **Default Parameter**, **Record 1**, **Record 2** and **Record 3** in circle show at the second line. Select one of the items and press **OK** to confirm setting.

5.1.8.6 LAN Setting

Such item is to set LAN parameters for the encoder, here including **IP Address**, **IP Mask Address**, **IP Way** and the **MAC Address**. Enter **LAN Setting** menu, press **left** or **right** key, **Set IP address**, Set IP Mask Address, **Set IP Way** and **Set the MAC Address** shows at the first line while the current parameter shows at the second line.

5.1.8.6.1 Set IP Address

Such item is to set IP address for the encoder. The specific operation: enter **Set IP Address** menu, the first Line shows Set IP Address and the second line shows the current IP address of the encoder. Press **OK** to enter modification

status, then cursor appears where the number can be modified, press **left** or **right** key to move cursor, press **up** or **down** key to modify the chosen number. Press **OK** to confirm setting.

5.1.8.6.2 Set IP Mask address

Such item is to set IP Mask address for the encoder. The specific operation is: enter **Set IP Mask Address** menu, the first Line shows Set IP Mask Address and the second line shows the current IP Mask address of the encoder. Press **OK** to enter modification status, then cursor appears where the number can be modified, press **left** or **right** key to move cursor, press **up** or **down** key to modify the number. Press **OK** to confirm setting.

5.1.8.6.3 Set IP Way

Such item is to set IP Way for the encoder. The specific operation: enter **Set IP Way** menu, the first line shows Set IP Way and the second line shows the current IP Way address of the encoder. Press **OK** to enter modification status, then cursor appears where the number can be modified, press **left** or **right** key to move cursor, press **up** or **down** key to modify the number. Press **OK** to confirm setting.

5.1.8.6.4 Set MAC Address

Such item can not be set but only be viewed.

Chapter Six Instruction of the Indication Light

POWER

Power indicator light.

It is in red when the power is in normal working state.

KB LOCK

Front panel indicator light.

When the encoder is working normally and the signal is locked, it is in green.

ALARM

Encoder alarm indicator light.

It is on when there is some errors in parameter setting.

Precautions

1. Please read this user manual before switch on TP-1320 H.264 SD/HD encoder.

2. Please make sure the video port is well connected when the machine is in the first use.

3. Do not open the cabinet of the box in case of electric shock or do damage to the encoder.

4. Please plug off the power when the encoder in not in use for a long time, please never use damaged electrical outlet to avoid fire or electric shock.

5. Never touch the electronic outlet with wet hand. Switch the power off at once if liquid leaks into the encoder.

6. Please put the encoder in a horizontal place and avoid pressing.

7. Do not put heavy objects on the encoder.

8. Put the machine in a ventilated, temper temperature place, avoids sunshine, moist, and strong shock.

9. When the machine is moved to a new place with sharp different temperature, please keep it off for one or two hours.

Appendix Default Parameter

Name	Default Value
Video Port Input	CVBS
Bit Rate	1.50Mbps
Video Brightness	55
Video Contrast	48
Video Saturation	48
Video Hue	50
Audio Sample Freq	48KHz
Audio Es Mode	stereo
Audio Bit Rate	64Kbps
Video PID	0x1011
Audio PID	0x1100
PCR PID	0x1001
PMT PID	0x0100
Bit Rate Mode	CBR
GOP Structure	IBBP
Set IP address	192.168.000.001
Set IP Mask address	255.255.255.000
Set IP Way	192.168.000.254
Set MAC Address	03 00 00 00 00 00